ABSORPTION CROSS SECTIONS FOR SLOW NEUTRONS

BY

JOHN WESLEY COLTMAN

B.S., Case School of Applied Science, 1937

M.S., University of Illinois, 1939

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ABSORPTION CROSS SECTIONS FOR SLOW NEUTRONS

The slow neutron absorption cross sections of several elements have been compared with that of boron by a method similar to that of Lapointe and Rasetti.[1] Instead of dissolving the substances under investigation in water, they were suspended in finely divided form in powdered carbon, thus increasing the sensitivity which was previously limited by the absorption of hydrogen. Corrections were made for the changes in neutron intensity due to scattering from the sample. In some cases new determinations of the scattering cross sections were performed for this purpose. The absorption cross sections in the table below were based on a value of 600×10^{-24} cm^2 for boron. Units are 10^{-24} cm^2. In all cases the error is less than 10%.

Na	.55	Cr	2.6	Mo	2.5
Mg	.33	Mn	13.3	Sb	5.4
Al	.22	Fe	2.3	Sn	.64
S	.45	Ni	6.2	I	5.6
Cl	35.	Cu	4.4	Ba	1.5
Ca	.47	Zn	1.06	Pb	.28
Ti	5.7	Sr	1.6		

1. C. Lapointe and F. Rasetti, Phys. Rev. *58*, 554 (1940).

VITA

John Wesley Coltman was born in Cleveland, Ohio in 1915. He received his elementary education in the public schools of Cleveland and New York City. He was graduated from Lakewood High School in 1933. In 1937 he obtained a Bachelor of Science degree in Physics from Case School of Applied Science. Since that time he has been at the University of Illinois as an assistant and Fellow in the Department of Physics. He received a Master of Science degree in 1939.